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DATE: Thursday, February 12, 2004

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	DB=JPAB; PLUR=YES; OP=ADJ		
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	DB=DWPI; PLUR=YES; OP=ADJ		
☐	L5	2000086301	1
	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ		
☐	L4	L3 and (glass substrate)	22
☐	L3	L2 and glass	206
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L4: Entry 5 of 22 File: PGPB Feb 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020015863
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020015863 A1

TITLE: Method for cleaning a glass substrate for a magnetic recording medium, a glass substrate cleaned by such a method, and a magnetic recording medium using such a substrate

PUBLICATION-DATE: February 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nakajima, Norihiko	Nagano		JP	
Kurata, Noboru	Nagano		JP	
Ajishi, Yoshihumi	Nagano		JP	
Shido, Miki	Nagano		JP	

APPL-NO: 09/ 841953 [PALM]
DATE FILED: April 25, 2001

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2000-126594	2000JP-2000-126594	April 26, 2000

INT-CL: [07] C03 C 15/00

US-CL-PUBLISHED: 428/694.0ST; 65/31, 134/3
US-CL-CURRENT: 428/694ST; 134/3, 65/31

REPRESENTATIVE-FIGURES: 1

ABSTRACT:

Abrasive grains are removed from a glass substrate for a recording medium by washing with water containing an elevated amount of oxygen atoms. The oxygen atoms may be in the form of monatomic diatomic or triatomic molecules. In one embodiment, the oxygen is formed at the anode of an electrolysis apparatus. A small amount of an electrolyte may be used in the electrolysis apparatus without interfering with the ability to clean the glass substrate without

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generating latent flaws. The invention also is defined as a substrate cleaned by the disclosed method and a magnetic recording medium made from the substrate.

L1: Entry 2 of 26 File: USPT Aug 5, 2003

DOCUMENT-IDENTIFIER: US 6601594 B2
TITLE: Apparatus and method for delivering a treatment liquid and ozone to treat the surface of a workpiece

Brief Summary Text (8):
Photoresist strip using ozone dissolved in water has been somewhat more successful in achieving viable process rate at acceptable process temperatures. However, ozone, like all gases, has a limited solubility in aqueous solutions. At temperatures near ambient, ozone saturation occurs at around 20 ppm. Ozone solubility in water increases dramatically with decreasing temperature, to a maximum of a little over 100 ppm at temperatures approaching 0 degrees Celsius and drops to almost zero at temperatures approaching 60 degrees Celsius. While increasing ozone concentration increases the kinetic reaction rate, a decrease in temperature simultaneously suppresses that rate.

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L1: Entry 13 of 26 File: USPT May 15, 2001

DOCUMENT-IDENTIFIER: US 6230720 B1
TITLE: Single-operation method of cleaning semiconductors after final polishing

Detailed Description Text (10):
The oxidizing solution preferably comprises ozonated water. More preferably, the concentration of ozone is at least about 10 ppm. Because as the temperature of the water increases the saturation concentration decreases, the temperature of the ozonated water is preferably less than about 35.degree. C., more preferably less than about 30.degree. C., and still more preferably about 17 to about 25.degree. C. At about 17 to about 25.degree. C., the saturation concentration is about 30 to about 35 ppm, thus, preferably the concentration of ozone is maintained at least about 1/3 of saturation which corresponds to about 10 ppm. More preferably, the concentration of ozone is maintained at about 50% of saturation, still more preferably at least about 70%, still more preferably at least about 90%, and still more preferably at about 100%. Additionally, by using methods known in the art, supersaturation of ozone can be achieved and may be preferred.

Detailed Description Text (38):
Preferably, the concentration of ozone is at least about 1 ppm, more preferably about 1 to about 5 ppm, and still more preferably about 5 to about 15 ppm. Most preferably, the concentration of ozone is about saturation. However, due to the inefficiency of current methods of dissolving ozone into water, an ozone concentration approaching saturation is currently not attainable without recirculation. Thus, the concentration of ozone attainable in a conventional overflow bath is significantly less than saturation (e.g., less than about 50% saturation). The temperature of the ozonated water is preferably less than about 35.degree. C., more preferably less than about 30.degree. C., and still more preferably about 17 to about 25.degree. C.

CLAIMS:

9. The process as set forth in claim 1 wherein the oxidizing agent comprises ozone having a concentration in the aqueous solution of at least about 1/3 the saturation concentration of the ozone in the aqueous solution wherein the saturation concentration is about 30 to about 35 ppm.

10. The process as set forth in claim 1 wherein the oxidizing agent comprises ozone having a concentration in the aqueous solution of at least about 50% of the saturation concentration of the ozone in the aqueous solution wherein the saturation concentration is about 30 to about 35 ppm.

11. The process as set forth in claim 1 wherein the oxidizing agent comprises ozone having a concentration in the aqueous solution of at least about 70% of the saturation concentration of the ozone in the aqueous solution wherein the saturation concentration is about 30 to about 35 ppm.

12. The process as set forth in claim 1 wherein the oxidizing agent comprises ozone having a concentration in the aqueous solution of at least about 90% of the saturation concentration of the ozone in the aqueous solution wherein the saturation concentration is about 30 to about 35 ppm.

13. The process as set forth in claim 1 wherein the oxidizing agent comprises ozone having a concentration in the aqueous solution of about the saturation concentration or above the saturation concentration of the ozone in the aqueous solution wherein the saturation concentration is about 30 to about 35 ppm.

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L2: Entry 48 of 103 File: USPT Sep 27, 1994

DOCUMENT-IDENTIFIER: US 5350543 A
TITLE: Method and apparatus for aerating an aqueous solution

Detailed Description Text (10):
At the beginning of the test the dissolved oxygen was 2.71 ppm. At the end of one hour the dissolved oxygen was 6.80 ppm. At the end of the second recorded hour the dissolved oxygen was 15.46 ppm. At the end of the third hour the test was terminated. The average dissolved oxygen in the reservoir was 16.62 ppm. The published dissolved oxygen saturation point of water at 20.degree. centigrade is 9.2 ppm. The system 10 of the invention supersaturated the tested reservoir with approximately 25% of the theoretical volume of water passing through the vortex cylinder 12. The system 10 is thus particularly suited for dissolving oxygen in an aqueous solution in a relatively quick and efficient manner.

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L2: Entry 30 of 103 File: USPT Oct 13, 1998

DOCUMENT-IDENTIFIER: US 5820758 A
TITLE: Composition and method for clarifying and deodorizing a standing body of water

Brief Summary Text (20):
Small gas bubbles rise more slowly than large bubbles, allowing more time for a gas to dissolve in the aqueous phase. This property is referred to as gas hold-up, concentrations of oxygen in water can be more than doubled beyond Henry's Law solubility limits. For example, after a saturation limit of 10 ppm oxygen is attained; at least another 10 ppm oxygen within small bubbles would be available to replenish the oxygen.

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L4: Entry 18 of 22 File: JPAB Mar 28, 2000

PUB-NO: JP02000086301A
DOCUMENT-IDENTIFIER: JP 2000086301 A
TITLE: CLEANING OF GLASS SUBSTRATE FOR MAGNETIC DISC

PUBN-DATE: March 28, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
MORISANE, TOSHITOMO	
KAWAGUCHI, MASAO	
TOKUSHIMA, TADAO	

ASSIGNEE-INFORMATION:

NAME	COUNTRY
FINE GLASS TECHNOLOGY KK	

APPL-NO: JP10232770
APPL-DATE: August 19, 1998

INT-CL (IPC): C03 C 21/00; B08 B 3/08; C23 G 1/02; G11 B 5/62; G11 B 5/84; H01 L 21/304; C11 D 7/02

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a method for cleaning a glass substrate for a magnetic disc, capable of selectively removing alkali metals from the surfaces of the glass substrate produced by an alkali ion exchange reinforcement method by cleaning the surfaces of the glass substrate with ion water activated by an electric polarization method, and to provide a glass substrate for a magnetic disc having a magnetic medium hardly corroded and having a good S/N ratio.

SOLUTION: This method for cleaning a glass substrate for a magnetic disc uses a glass substrate or crystallized glass substrate pulled up from a chemically reinforcing treatment liquid by an alkali ion exchange method. Therein, after a final polishing process for producing the glass substrate for the magnetic disc the glass substrate is cleansed with anode water activated by an electric polarization method to selectively remove alkali metals contained near to the surfaces.

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